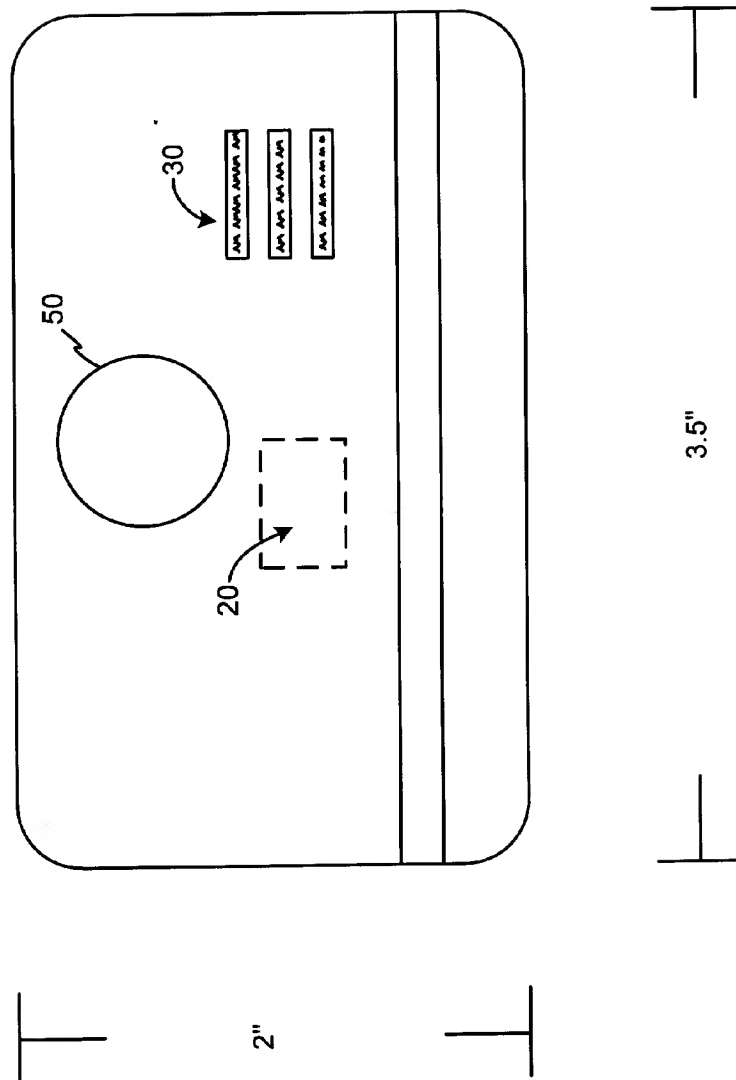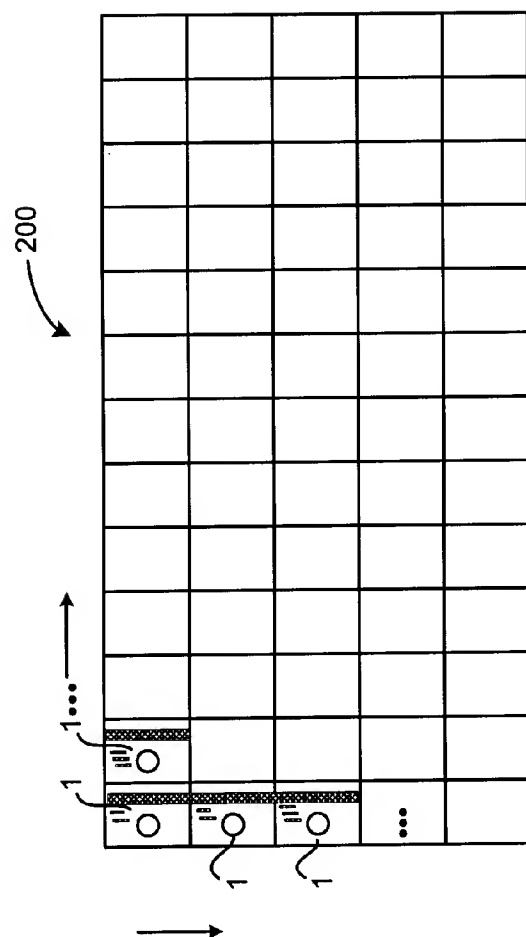**FIGURE 1**
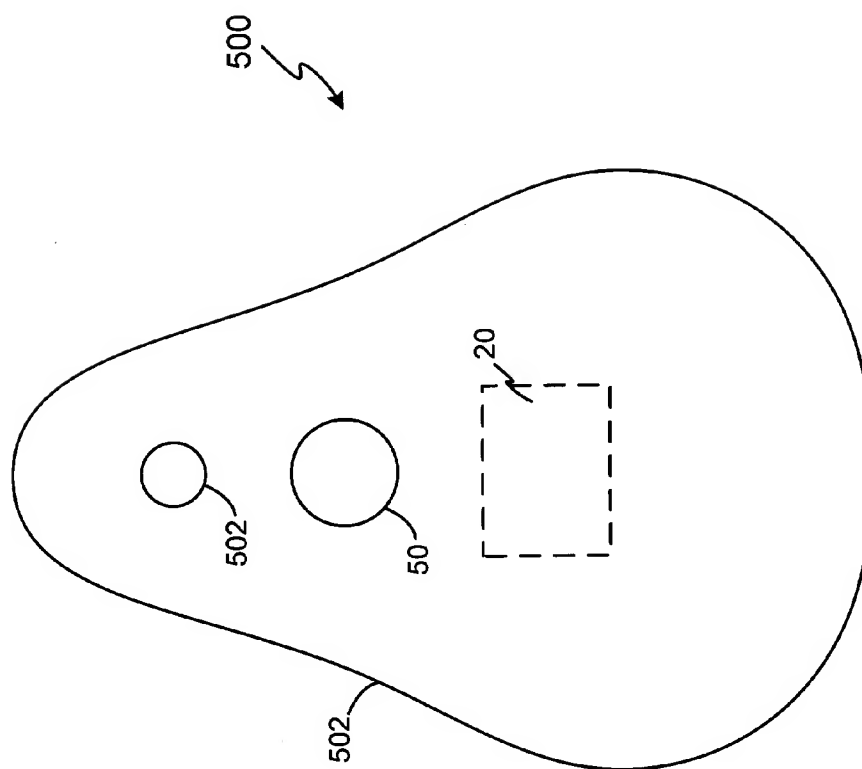
FIGURE 2

FIGURE 3
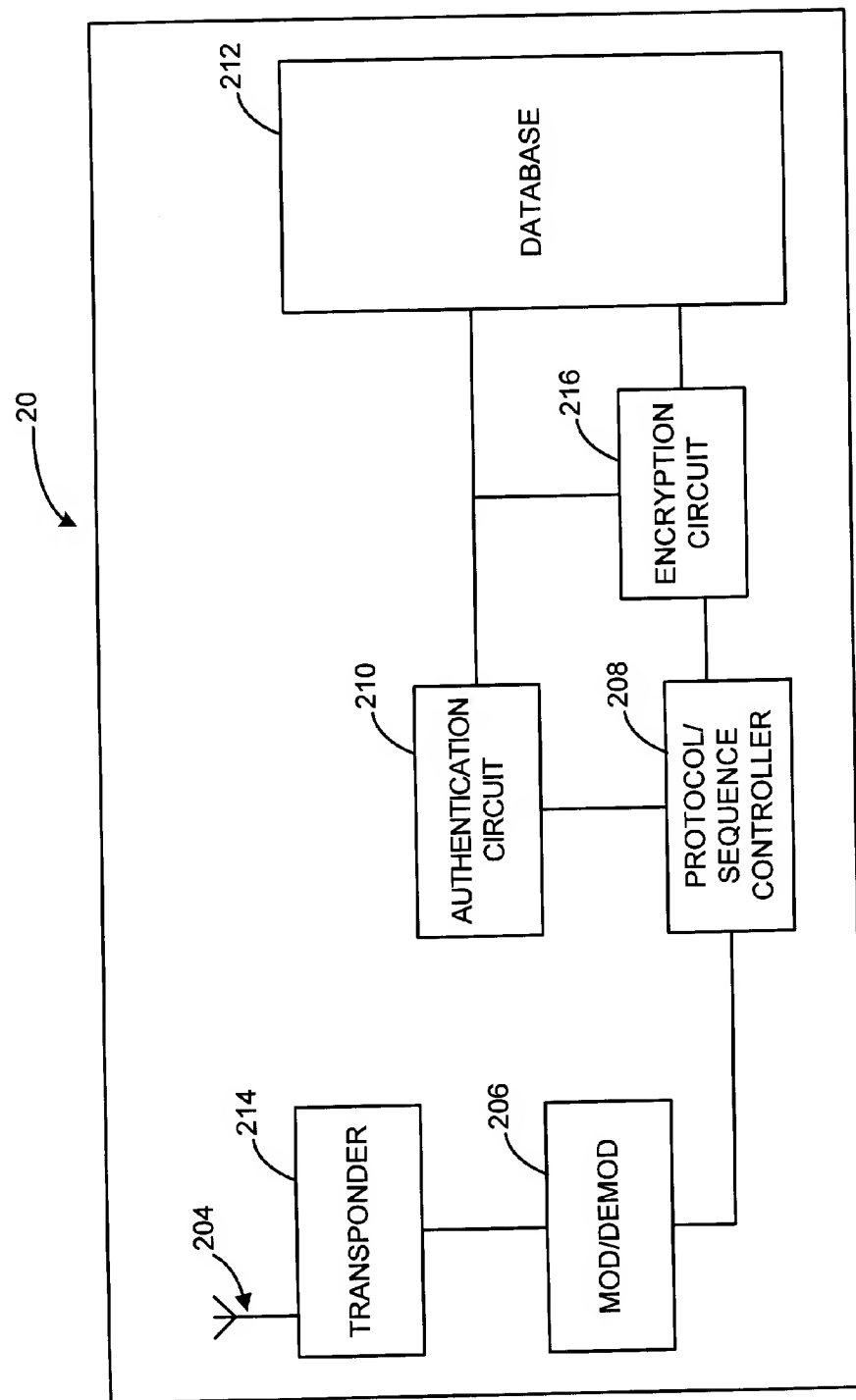
FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

```
                    ┌─────────┐
                    │  START  │
                    └────┬────┘
                         │
                         ▼
        ┌──────────────────────────────────┐  ╱802
        │  SHEET OF TRANSACTION DEVICE      │
        │  COMBINATIONS MANUFACTURED        │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐  ╱804
        │  TRANSACTION DEVICE OUTLINE       │
        │  IMPRESSED IN THE TRANSPORTER     │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐  ╱806
        │  TRANSACTION DEVICE REMOVED       │
        │  FROM THE TRANSPORTER             │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐  ╱808
        │  TRANSACTION DEVICE USED          │
        │  TO COMPLETE TRANSACTION          │
        └────────────────┬─────────────────┘
                         │
                         ▼
                    ┌─────────┐
                    │   END   │
                    └─────────┘
```
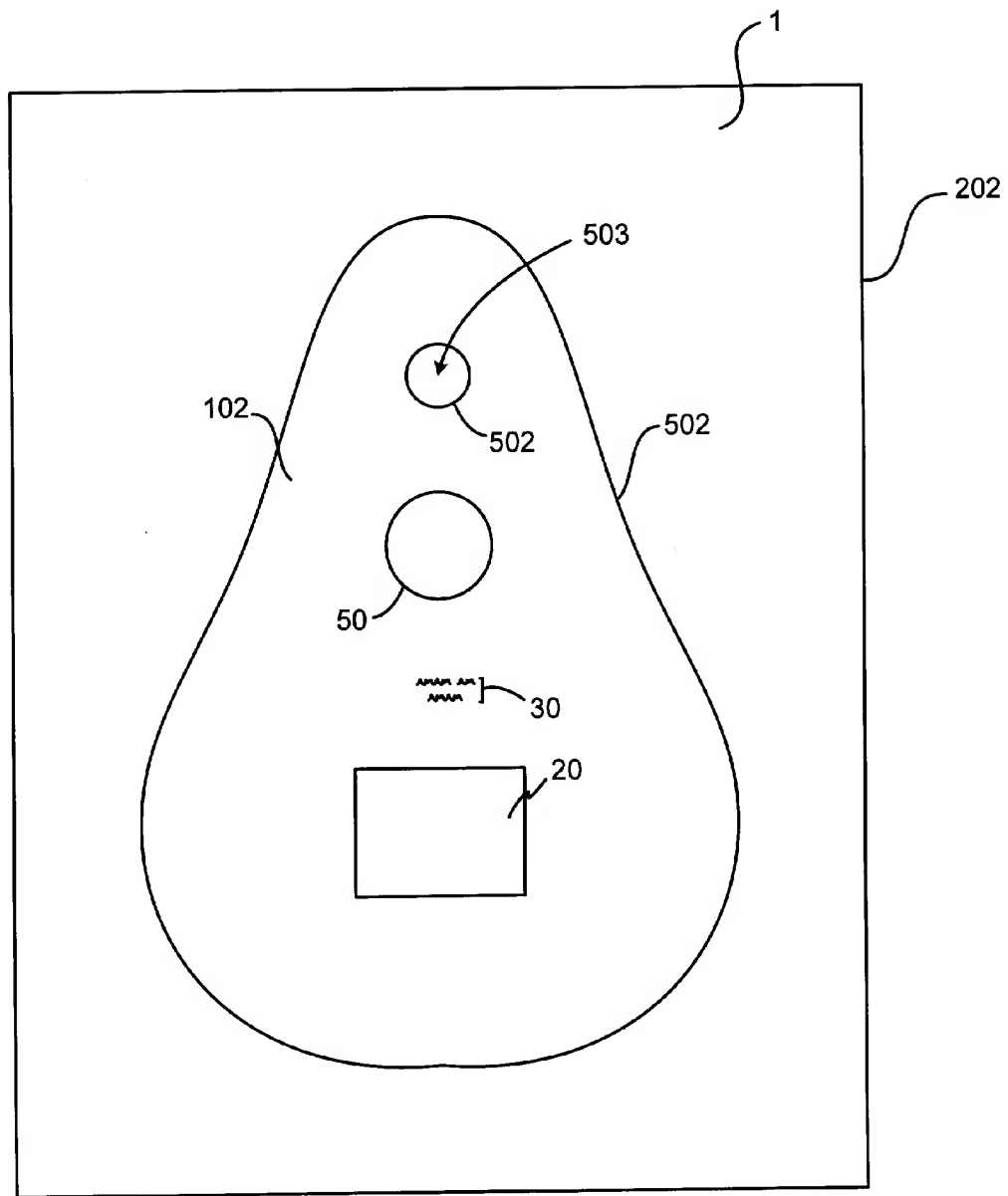
FIGURE 8

FIGURE 9

FIGURE 10

FIGURE 12

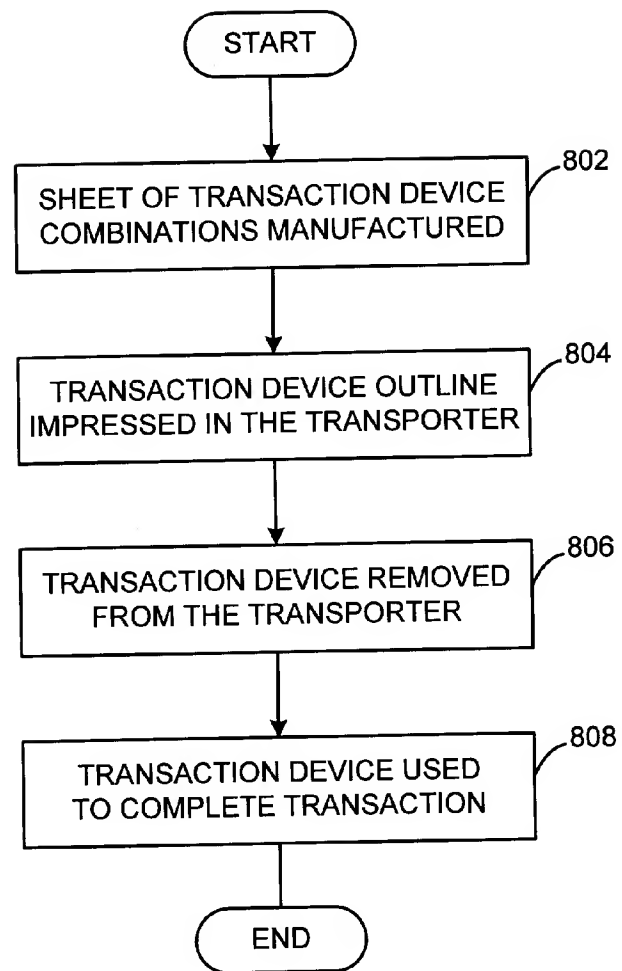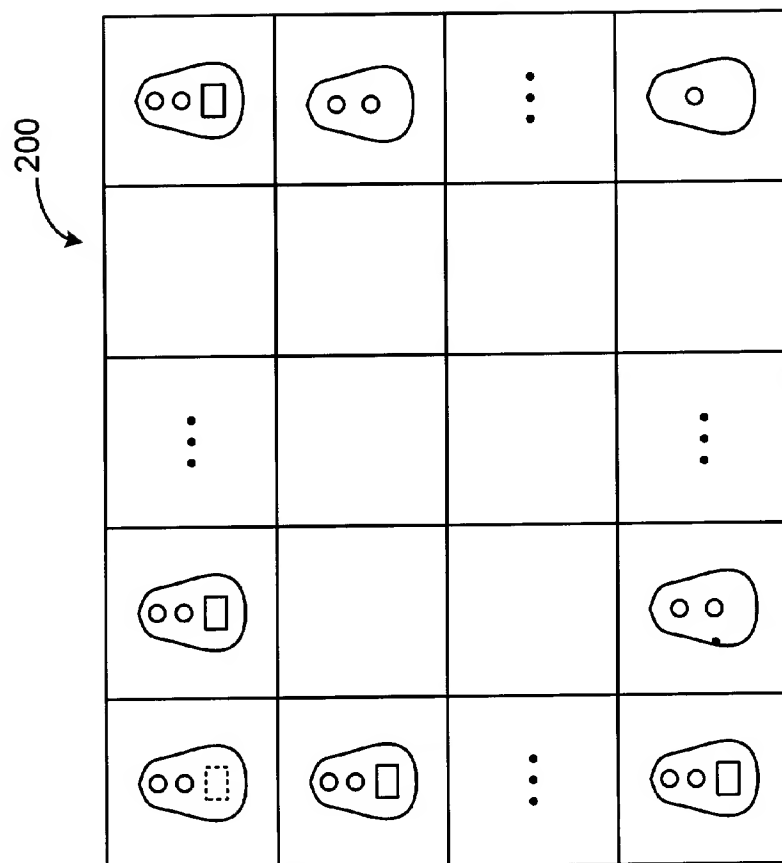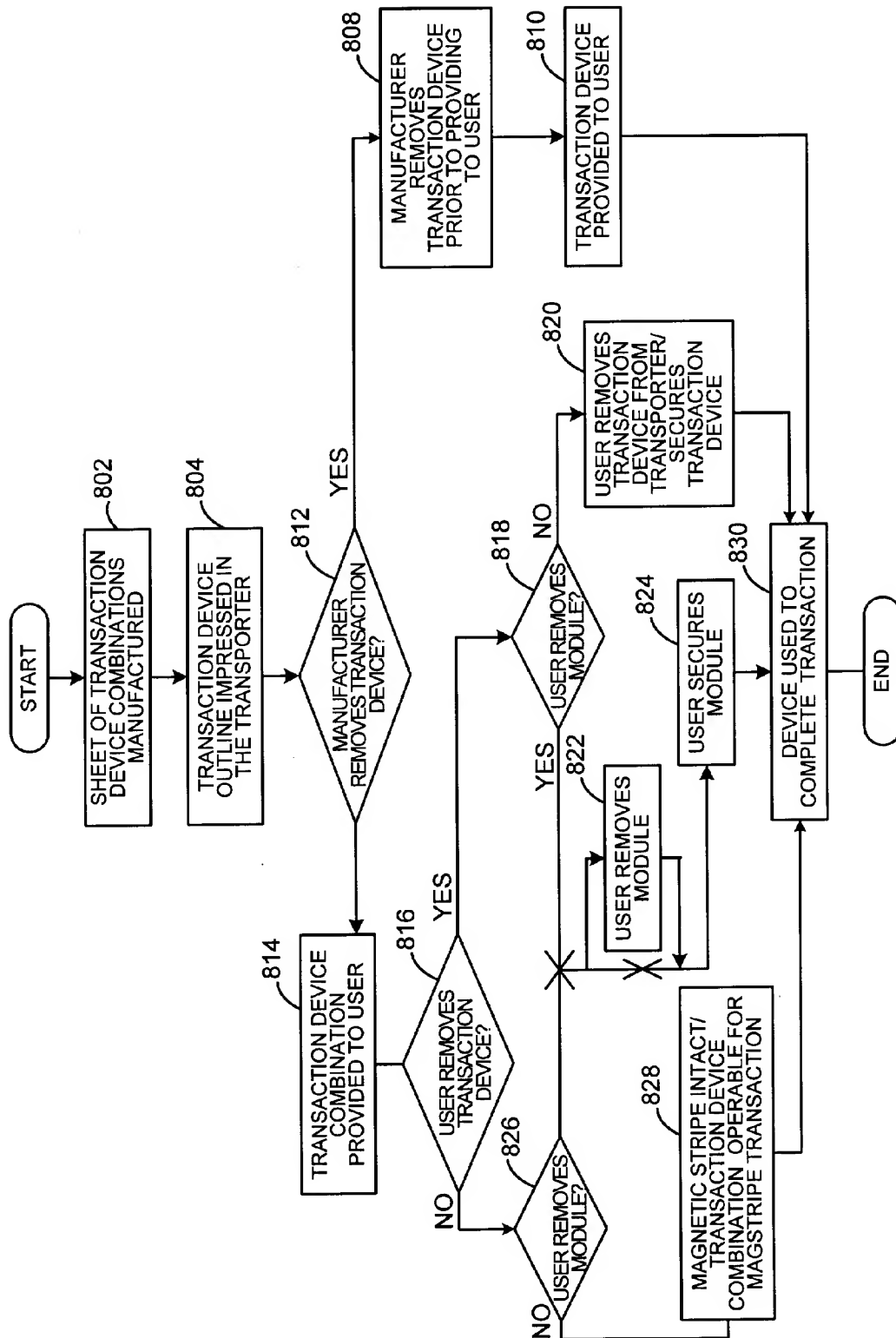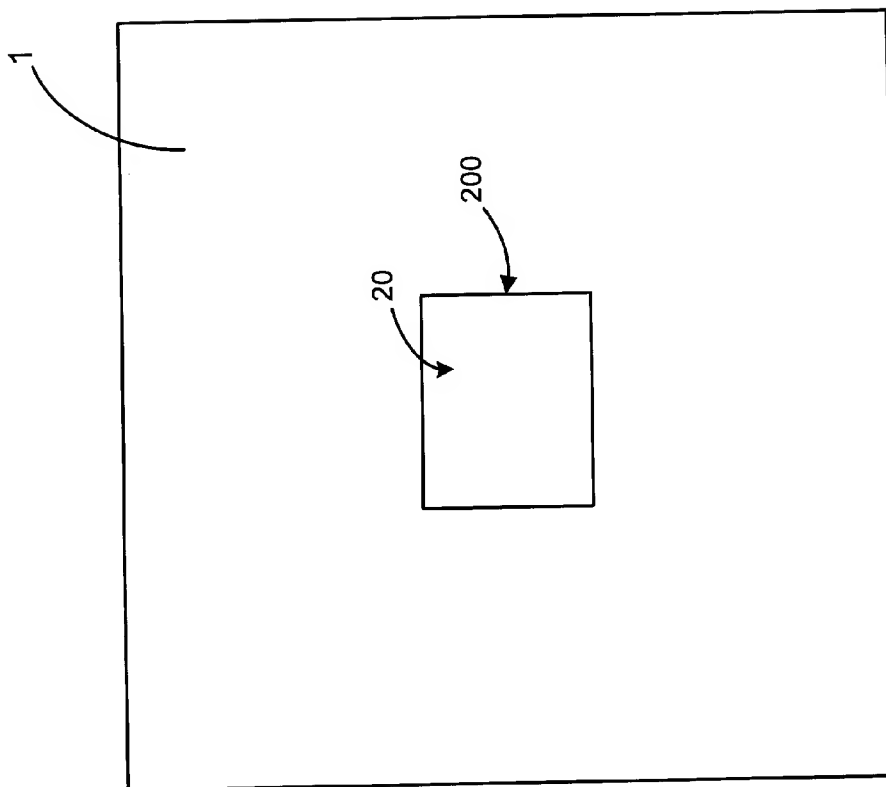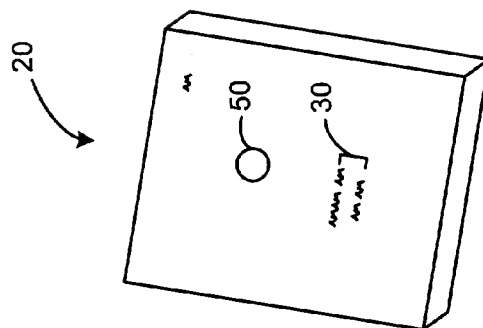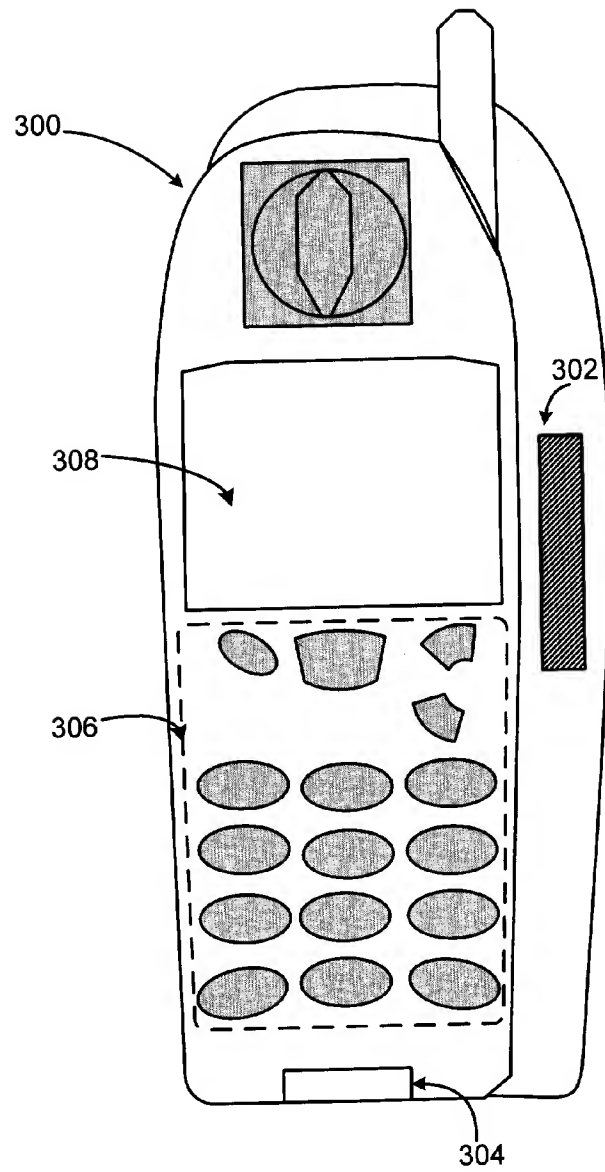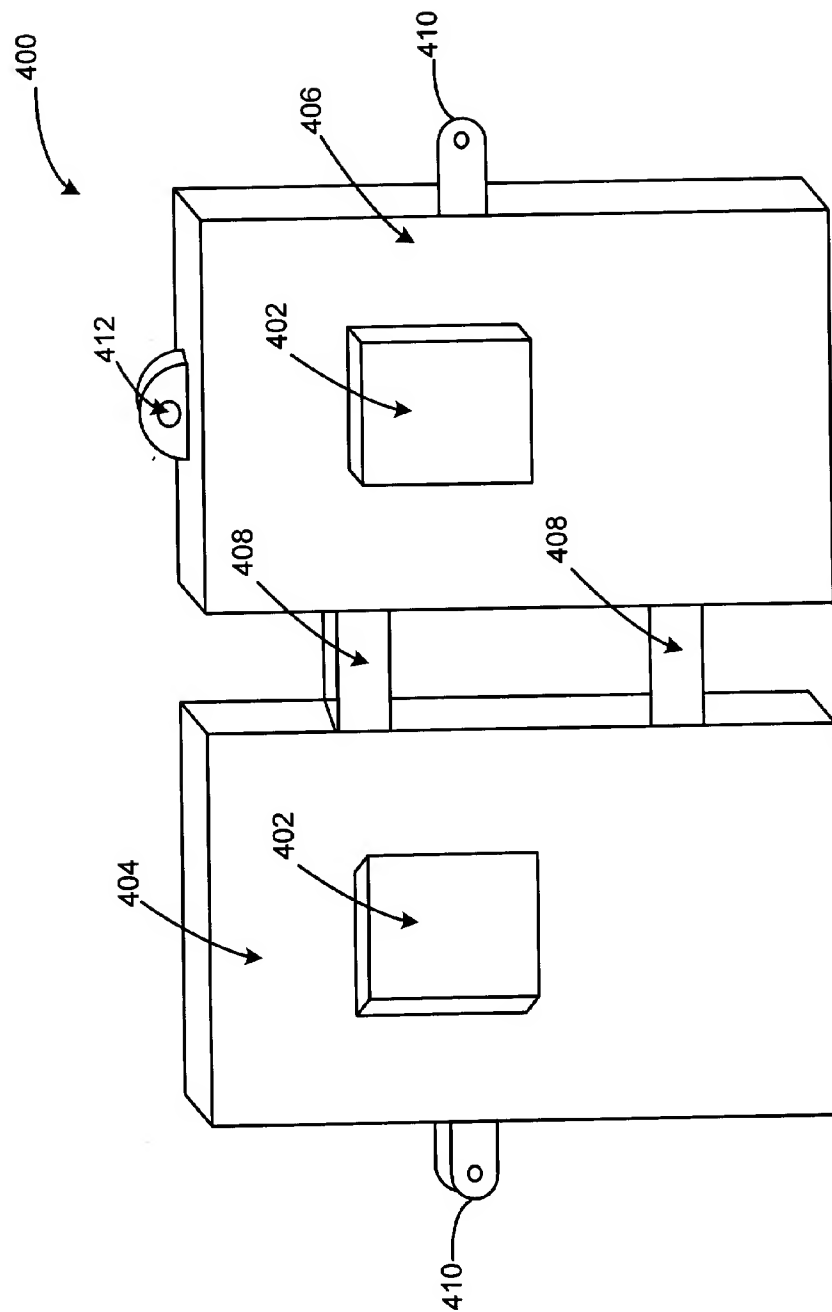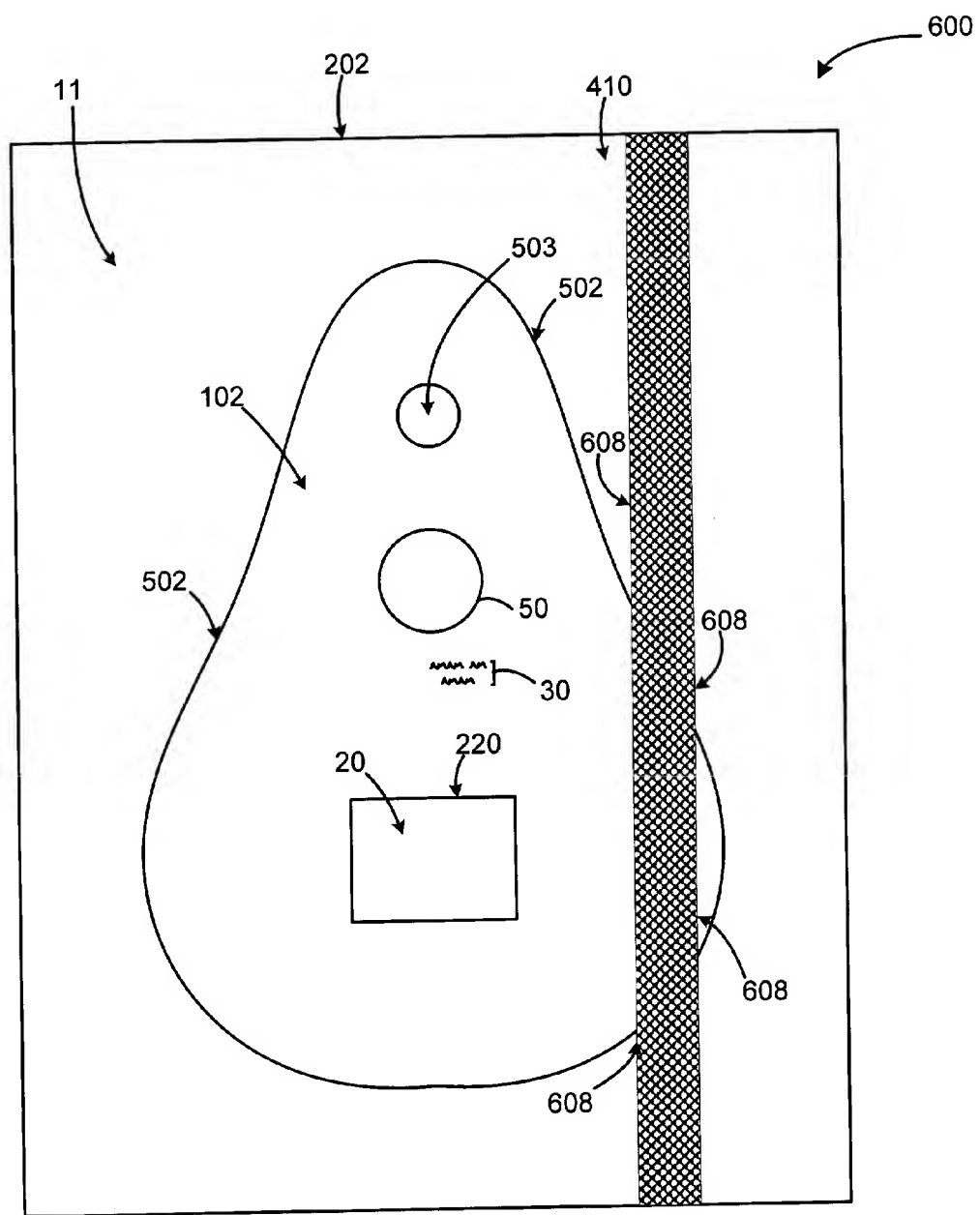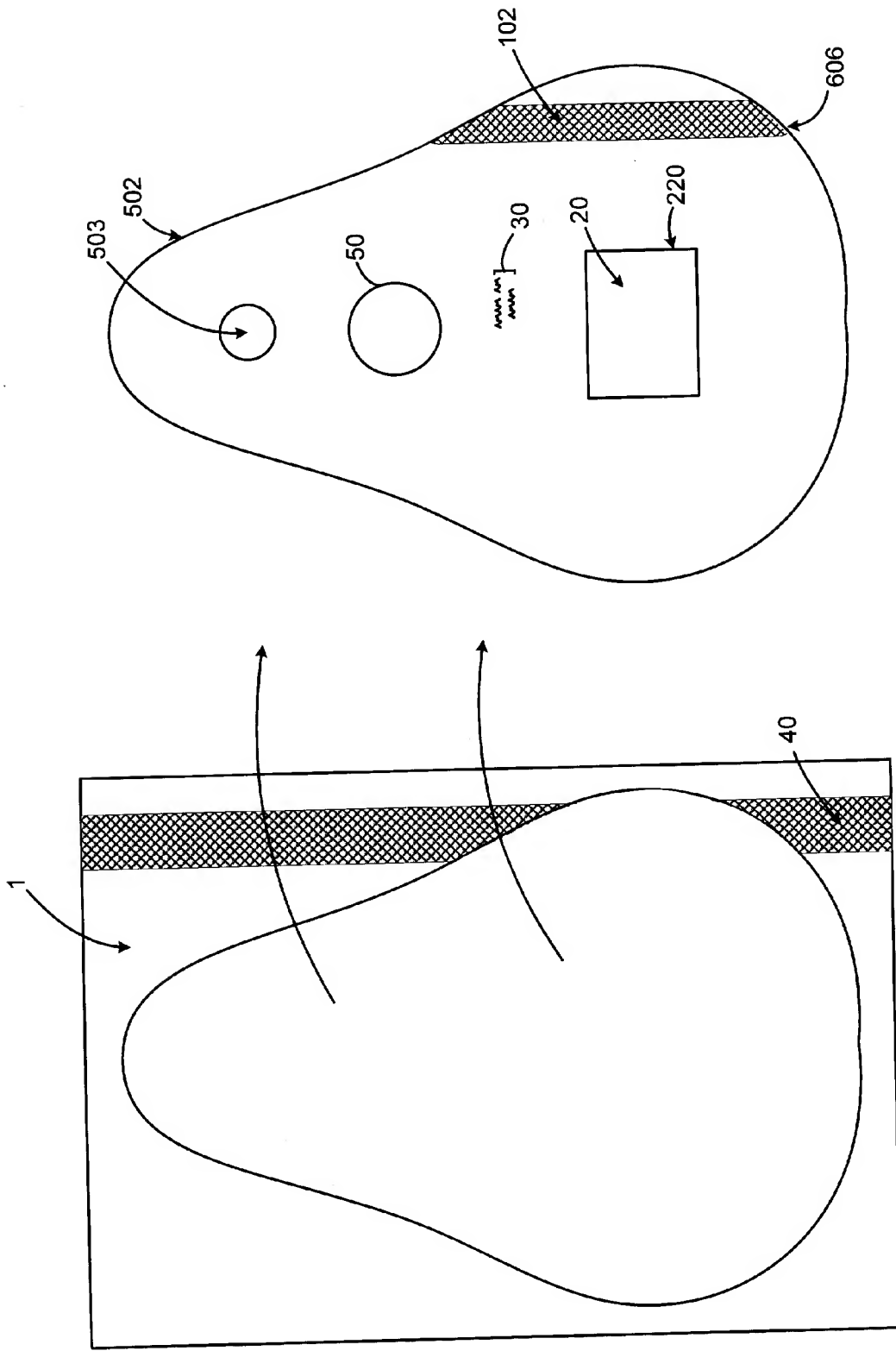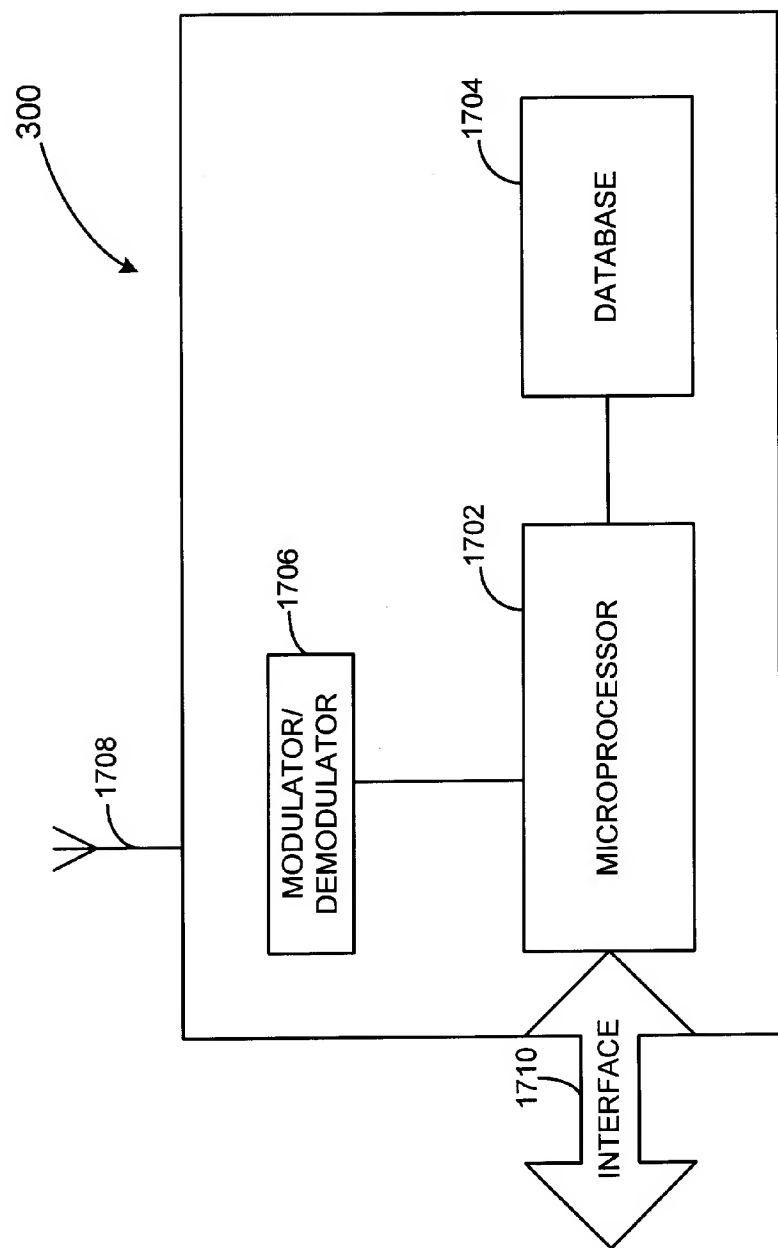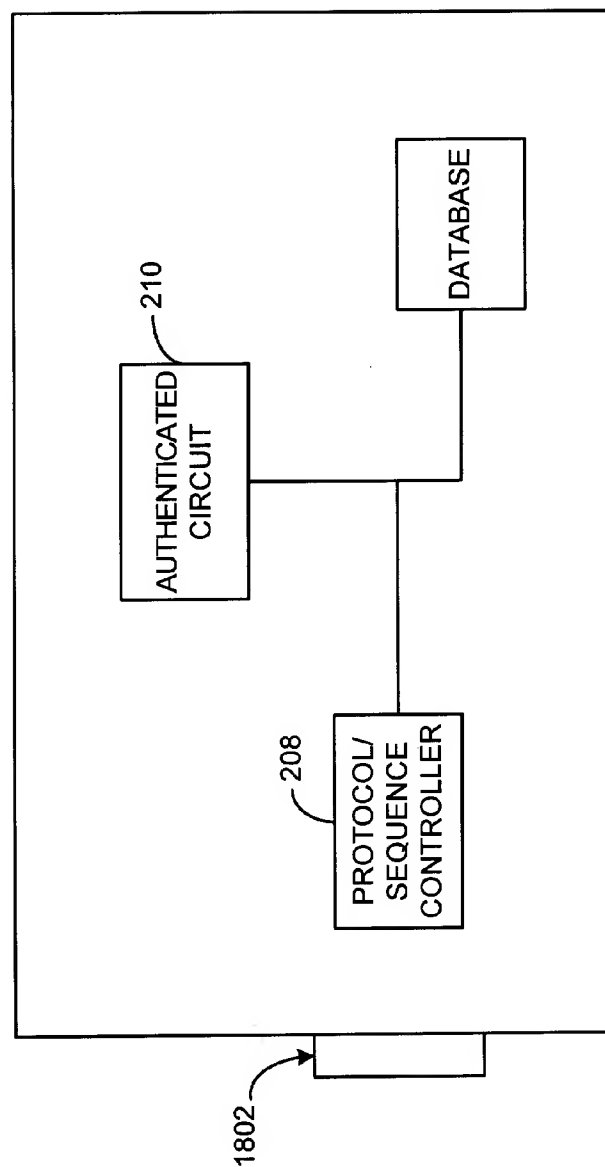**FIGURE 11**

FIGURE 13

FIGURE 14

FIGURE 15

502
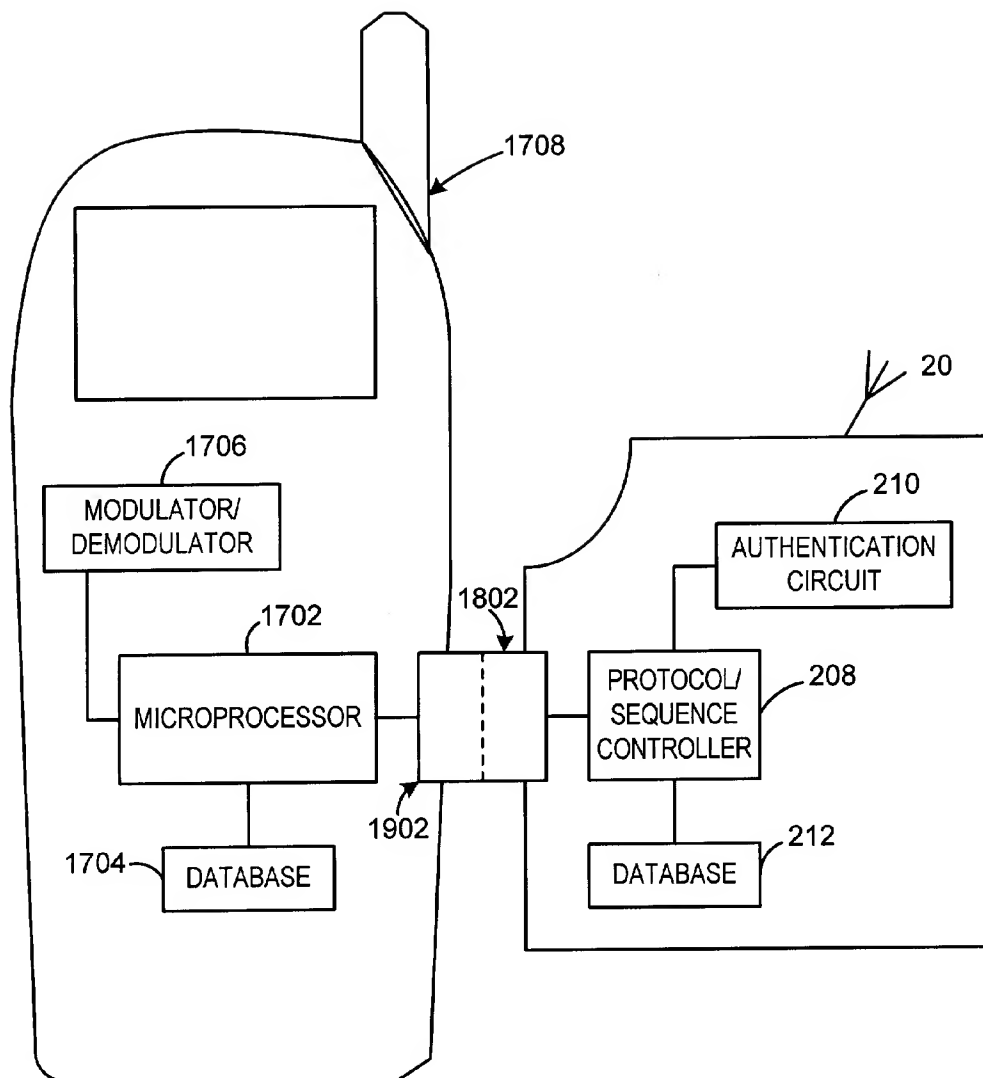
503

102

606

50

30

20

220

1

40

FIGURE 16

FIGURE 17

FIGURE 18

1708

20

1706
MODULATOR/
DEMODULATOR

210
AUTHENTICATION
CIRCUIT

1702
MICROPROCESSOR

1802

PROTOCOL/
SEQUENCE
CONTROLLER

208

1902

1704 DATABASE

DATABASE

212

FIGURE 19

```
                    ┌─────────┐
                    │  START  │
                    └────┬────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2002
        │ TRANSACTION DEVICE PRESENTED FOR  │
        │     TRANSACTION PROCESSING        │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2004
        │   READER PROVIDES INTERROGATION   │
        │        SIGNAL TO RF MODULE        │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2006
        │       RF MODULE RECEIVES THE      │
        │        INTERROGATION SIGNAL       │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2008
        │    READER AND RF MODULE MUTUALLY  │
        │           AUTHENTICATE            │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2010
        │     RF MODULE TRANSFERS USER      │
        │      ACCOUNT DATA TO READER       │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2012
        │    READER PROVIDES USER ACCOUNT   │
        │            DATA TO POS            │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2014
        │      MERCHANT SYSTEM FORMS        │
        │        TRANSACTION REQUEST        │
        └────────────────┬─────────────────┘
                         │
                         ▼
        ┌──────────────────────────────────┐      2016
        │    TRANSACTION REQUEST PROVIDED   │
        │  TO ACCOUNT ISSUER FOR PROCESSING │
        └────────────────┬─────────────────┘
                         │
                         ▼
                    ┌─────────┐
                    │   END   │
                    └─────────┘
```

FIGURE 20

104

2120

2112 DATABASE

2116 ENCRYPTION CIRCUIT

2110 AUTHENTICATION CIRCUIT

2108 PROTOCOL/ SEQUENCE CONTROLLER

2114 TRANSPONDER

2106 MODULATOR/ DEMODULATOR

2122

2104

FIGURE 21

START

READER PROVIDES AUTHENTICATION CODE TO RF MODULE — 2202

RF MODULE RECEIVES THE AUTHENTICATION CODE — 2204

RF MODULE RECOGNIZES REQUEST FOR AUTHENTICATION — 2206

RF MODULE ENCRYPTS AUTHENTICATION CODE — 2208

RF MODULE PROVIDES ENCRYPTED AUTHENTICATION CODE TO READER — 2210

READER DECRYPTS AUTHENTICATION CODE — 2212

VERIFIED ? — 2214

NO

YES

RF MODULE UNAUTHORIZED — 2216

RF MODULE AUTHORIZED — 2220

TRANSACTION TERMINATED — 2218

TRANSACTION PROCESSED — 2222

END

FIGURE 22